

What can I do with a chemical engineering degree from Ohio State?

What's great about being a chemical engineer is the wide range of possibilities, from working for NASA to engineering the world's best cosmetics. The opportunities to work in cutting-edge technology are everywhere!

As you move forward you will find that the tools you possess as a chemical engineer are universal in their application, giving you the freedom to participate in almost any industry, and in flexible capacities. Many Ohio State chemical engineers around the world have used their problem-solving skills to become entrepreneurs, executives, and CEOs.

A few possible career areas include:

- Biomedical: cancer research, diagnostics
- Chemical processing, specialty chemicals
- Environmental engineering
- Food and food processing, agriculture
- Metabolic engineering, bio-fuel production
- Nanotechnology, nanobiotechnology
- Paper, paint, and adhesives
- Personal and consumer goods products
- Petroleum and petrochemicals
- Pharmaceuticals
- Polymers and plastics processing.

Why choose The Ohio State University?

As the largest state university in the world, Ohio State offers a dazzling range of opportunities for learning, research, and career and leadership development; as well as social clubs, athletics (National Football Champion eight times), and many other cultural and recreational activities. The department itself is relatively small, and many students find that it has a home-town feel.

Located in the new Chemical and Biomolecular Engineering and Chemistry (CBEC) building, students have state-of-the-art facilities and hands-on collaborative learning experiences that prepare them to meet today's diverse, interdisciplinary demands. The program is ranked in the top 30 programs in the nation.

As a Buckeye Engineer, you will join the ranks of thousands of alumni whose innovations have transformed the problems of society into solutions for the betterment of mankind.

Scholarship assistance is available to qualified students.

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THE OHIO STATE
UNIVERSITY
COLLEGE OF ENGINEERING



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Undergraduate Program Information



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

What is Chemical and Biomolecular Engineering?

Chemical engineering involves a knowledge of chemistry, but is not limited to either chemistry or chemicals. Chemists investigate the fundamental behavior of matter to identify new compounds and better ways of making existing compounds, while chemical engineers focus on reaction mechanisms, structure, processes and properties of matter and raw materials to design, develop, and execute chemical and biomolecular processes by which the chemicals, petroleum products, food, pharmaceuticals, and consumer goods and products are made.

One of the trademarks of a chemical engineer is the ability to improve existing materials and processes to achieve safer and more cost-efficient outcomes. Chemical engineers today can work at the cellular and molecular level to perform metabolic engineering, nanomanufacturing, research involving medical diagnostics and innovative materials used in medical devices, and much more.



Engineering Without Borders students in Haiti, where they installed solar panels to power a school's lights and computer lab.

How can I prepare for a chemical engineering degree?

A strong background in chemistry, math and physics is essential if you want to major in chemical engineering. Students should also have extensive knowledge of computers and ideally, computer programming skills.

Take as much chemistry and calculus or the highest-level math class that your high school offers. If you are interested in the biomolecular option, be sure to take biology and advanced biology as well.

Curriculum Options

A sampling of required courses for a B.S. degree in ChemE:

- Introductory engineering classes
- General, organic and physical chemistry
- Calculus, calculus-based physics and differential equations
- Basic computer programming
- Thermodynamics, transport phenomena, kinetics
- Design, process control and operations.

Students may choose a particular focus area such as environmental engineering (air pollution, industrial ecology); biomolecular engineering (engineering analysis and design applied to chemical and biological sciences); polymer and plastics processing; or petroleum engineering.



Dow Student Lounge is one of several spaces for students to study or have group meetings for class assignments.



Students have benefitted from internships at such places as NASA, Genentech, Anheuser-Busch, J.M. Smucker, CERN Labs and more.

Hands-on Learning

Chemical engineering at The Ohio State University offers various ways to gain a solid foundation in both the theoretical and applied aspects of chemical engineering, as well as experiences that help shape the leadership and communication skills that are often critical to success.

AIChE and ChemE Car: Joining the American Institute of Chemical Engineers provides leadership development opportunities and can be a key step in the career of a chemical engineer. An exciting venture is to participate in ChemE Car, where students compete nationally to build and race a toy-sized car that is fueled entirely by chemical reactions.

Co-Ops and Internships: Alternating semesters of full-time coursework with paid, full-time employment provides an ideal opportunity for applying classroom knowledge to career-related positions. The College of Engineering's Co-op and Internship Services helps place students with employers, working with them to create resumes, improve interviewing skills, and search for jobs. Some experiences lead to jobs following graduation.

Research Options: Some undergraduates take advantage of opportunities to work on a research problem under the direction of a faculty member. Projects could involve performing literature searches, computer programming and data analysis, and/or lab work. The experience of solving open-ended research problems is ideal for those interested in pursuing a graduate degree.

Service and Study Abroad: Volunteering in the community or performing service abroad is another great way to gain experience. Engineering Without Borders (EWB) and Engineers for Community Service (ECOS) are just two of many organizations offering such life-changing experiences as installing a water treatment system for an orphanage in the Honduras, or solar panels to power a Haitian school's lights and computer lab.

Unit Operations Lab: The Unit Operations ("Unit Ops") course helps prepare students for working in industry through hands-on learning and real-life problem-solving. Working in groups on multiple experiments, students use a variety of equipment in a plant-like environment. The course is memorable and at times intense. Many students have described it as a bonding experience and find that the skills learned in Unit Ops serve them throughout their careers.