

# CHEMICAL ENGINEERING

A photograph of four people in a laboratory setting. On the left, a man in a white lab coat and safety glasses is looking towards the center. In the center, a woman in a white lab coat and safety glasses is holding a large white tube. To her right, a man in a white lab coat and safety glasses is also looking towards the center. On the far right, a man in a light blue lab coat and safety glasses is looking towards the camera. They are surrounded by various pieces of laboratory equipment, including a large white tube, a black container, and a metal stand with a gauge.

Modern chemical engineering combines knowledge of chemistry and molecular interactions with the discipline of engineering to address problems at both the small scale and the large scale. Chemical engineers invent new processes, improve existing ones and design and operate plants and equipment to transform raw feed stocks into useful products across a wide range of industries including agricultural and food-based products, consumer products, fine chemicals, fuels and petrochemicals, pharmaceuticals, plastics and electronic materials.

## FOR MORE INFORMATION, VISIT THESE WEBSITES:

**Chemical Engineering:** [www.engr.uky.edu/cme](http://www.engr.uky.edu/cme) **College of Engineering:** [www.engr.uky.edu](http://www.engr.uky.edu)

**University of Kentucky:** [www.uky.edu](http://www.uky.edu)

**Admissions:** [www.uky.edu/admissions](http://www.uky.edu/admissions)

**Visit Engineering:** [www.engr.uky.edu/visit](http://www.engr.uky.edu/visit)

**Scholarships:** [www.uky.edu/scholarships](http://www.uky.edu/scholarships)

## Chemical Engineering Curriculum Sample

This is a sample list of classes a student will take to pursue a degree in chemical engineering. As part of the chemical engineering curriculum, students must complete the pre-engineering requirements, major requirements and general education coursework, called UK Core.

Note: This sample represents one of several paths to a College of Engineering degree. Consult the departmental website for details on specific paths.

### Freshman Year

Engineering Exploration I and II	3
Fundamentals of Engineering Computing	2
Calculus I and II	8
Composition & Communication I and II	6
Chemistry I and Lab and Physics I	9
UK Core Course	3
<b>Total hours</b>	<b>31</b>

### Sophomore Year

Process Principles	3
Calculus III and IV	7
Physics II	4
Chemistry II and Lab	5
Engineering Thermodynamics	3
Materials Science	3
Computational Tools in Chemical Engineering	3
Engineering Statistics	3
UK Core Course	3
<b>Total hours</b>	<b>34</b>

### Junior Year

Fluid Mechanics	3
Separation Processes	3
Physical Chemistry for Engineers	3
Technical Writing	3
Organic Chemistry I and II and Lab	7
Process Modeling	3
Heat and Mass Transfer	4
Chemical Engineering Lab I	2
Engineering/Science Elective	3
Engineering Profession	0
<b>Total hours</b>	<b>31</b>

### Senior Year

Professionalism, Ethics and Safety	2
Chemical Engineering Lab II	3
Process Design I and II	6
Chemical Reactor Design	3
Process Control	3
Engineering/Science Electives	9
Engineering Profession II	0
UK Core Course	6
<b>Total hours</b>	<b>32</b>

## Pursuing Chemical Engineering at UK

Chemical engineering students at UK experience an environment where faculty are readily accessible inside and outside the classroom, and where students have the chance to grow personally and professionally through hands-on research projects, industrial cooperative education and service opportunities. Our alumni follow diverse paths; while many enter industrial positions, others pursue advanced engineering and professional degrees at prestigious institutions across the nation.

## Career Prospects in Chemical Engineering

The breadth and analytical rigor of the chemical engineering bachelor's degree make it one of the most highly valued technical credentials. Starting salaries for chemical engineering graduates are typically among the highest of all majors. Chemical engineers are in demand and work in a wide range of industries. Our chemical engineering alumni have been successful in the traditional and alternative energy sectors, biotechnology, consumer products, environmental engineering, fine chemicals, food technology, materials processing, pharmaceuticals and many other areas.

## Undergraduate Research in Chemical Engineering

The chemical engineering faculty members at UK are committed to providing a broad range of research opportunities. Undergraduate students work side-by-side with faculty members and graduate students on experimental and computational problems at the frontiers of chemical engineering knowledge. Areas of research emphasis include advanced materials, biotechnology and drug delivery (including cancer research), energy and sustainability, environmental engineering, membrane science, pharmaceutical engineering and polymers.

The University of Kentucky's chemical engineering program is accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

**Revised August 2018.** Information subject to change. For the most up-to-date information on the UK College of Engineering, visit [www.engr.uky.edu](http://www.engr.uky.edu).