

# CHEMICAL & BIOMOLECULAR ENGINEERING:

ENGINEERING THE CHEMISTRY OF A BETTER WORLD



## WHAT IS CHEMICAL ENGINEERING?

Chemical engineers are taught to link chemistry and engineering in order to produce substances or products that improve people's lives. Chemical engineers develop techniques and processes to convert raw materials into products such as plastics, food, pharmaceuticals, petroleum products and other consumer goods while maximizing efficiency and minimizing risk and environmental impact.

## CAREERS IN CHEMICAL ENGINEERING

Chemical engineering careers span chemicals manufacturing, refining, advanced materials, resource management, medicine, pharmaceuticals development and production, pollution control and environmental remediation.

Career opportunities in chemical engineering are excellent – especially in the city of Houston, the Energy Capital of the World. A 2017 salary survey produced by the National Association of Colleges and Employers found that new chemical engineering graduates earned an average starting salary of \$68,445.

Career opportunities for chemical engineers in Houston tend to be better than the national average. Almost half of Houston's economy is driven by energy, with more than 3,600 energy-related companies based in Houston. All of the major oil and gas companies have operations in Houston, and the region boasts almost 40,000 jobs just in oil and gas extraction, representing one-third of such positions worldwide!

## WHY EARN YOUR CHEMICAL & BIOMOLECULAR ENGINEERING DEGREE AT THE UNIVERSITY OF HOUSTON?

### ACADEMICS

The chemical and biomolecular engineering department at the University of Houston Cullen College of Engineering is one of the top-ranked chemical engineering programs in the nation. Chemical engineering undergraduates are prepared to meet or exceed the expectations of employers, particularly in the energy and chemical industries. Many graduates of the chemical engineering program are currently employed in leading positions in industry, academia and government across the Houston region and around the world.

Conveniently located in the Energy Capital of the World, students have direct access to internships and full-time positions throughout the region and are strongly encouraged to pursue professional opportunities while they are still in school.

Learn more at [www.chee.uh.edu/undergraduate/degree](http://www.chee.uh.edu/undergraduate/degree)

### RESEARCH

At the University of Houston Cullen College of Engineering, there's no shortage of research for chemical engineers. The University of Houston is home to some of the world's most advanced energy research, touching on areas such as sustainability, alternatives, grid power, solar energy, wind energy and superconductivity. Moreover, the university has a 74-acre campus, called Energy Research Park, dedicated solely to bringing industry and academia together to conduct energy research in clean engines and fuels, wind energy, superconductivity and petroleum engineering. All undergraduate students in the chemical engineering department are strongly encouraged to get hands-on research experience in one of the many faculty research groups, labs or centers on campus while they are pursuing their degrees.

Learn more at [www.chee.uh.edu/research/overview](http://www.chee.uh.edu/research/overview)

### SCHOLARSHIPS

Departmental scholarships are offered from the Lubrizol Foundation, Chevron Scholarship Fund, Founders/Worley Scholarship Fund, Scheller Scholarship Fund, Tiller Scholarship Fund and Fleischer Scholarship Fund. Merit-based scholarships are also awarded by the Cullen College of Engineering.

Scholarships are also offered by the University of Houston Office of Scholarships and Financial Aid. Additionally, the university's co-op program allows students to receive career training while financing their education.

Learn more at [www.chee.uh.edu/undergraduate/scholarships/chbe-department](http://www.chee.uh.edu/undergraduate/scholarships/chbe-department)

### STUDENT ORGANIZATIONS

Students are encouraged to join academic and professional organizations to build leadership, communication and networking skills. Members of student organizations receive career guidance from engineering professionals and participate in activities that promote engineering.

Chemical engineering organizations include the American Institute of Chemical Engineers (AIChE) and the Society of Petroleum Engineers (SPE).

Learn more at [www.chee.uh.edu/people/student\\_organizations](http://www.chee.uh.edu/people/student_organizations)

## FOR MORE INFORMATION

UH Department of Chemical and Biomolecular Engineering: [www.chee.uh.edu](http://www.chee.uh.edu)  
Undergraduate Program: [www.chee.uh.edu/undergraduate/overview](http://www.chee.uh.edu/undergraduate/overview)  
Email: [vellison@central.uh.edu](mailto:vellison@central.uh.edu)

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# BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

**FOUR-YEAR ACADEMIC MAP 2018-2019**

## YEAR 1

SEMESTER 1		SEMESTER 2		Total	
ENGI 1100	Introduction to Engineering	1	CHEM 1332	Fundamentals of Chemistry II	3
CHEM 1331	Fundamentals of Chemistry	3	CHEM 1112	Fundamentals of Chemistry Lab II	1
CHEM 1111	Fundamentals of Chemistry Lab	1	ENGI 1331	Computing for Engineers	3
ENGL 1303	First Year Writing I	3	ENGL 1304	First Year Writing II	3
MATH 1431	Calculus I	4	MATH 1432	Calculus II	4
POLS 1336	U.S. and Texas Constitutions & Politics	3	PHYS 1321	University Physics I	3
<b>Semester Hours</b>		<b>15</b>	<b>Semester Hours</b>		<b>17</b>
					<b>32</b>

## YEAR 2

SEMESTER 1		SEMESTER 2		Total	
CHEE 2331	Chemical Processes	3	CHEE 2332	Thermodynamics I	3
CHEM 3331	Organic Chemistry I	3	CHEE 3300	Materials Science and Engineering	3
MATH 2433	Calculus III	4	CHEM 3221	Organic Chemistry Lab	2
POLS 1337	U.S. Government	3	CHEM 3332	Organic Chemistry II	3
HIST 1377	The United States to 1877	3	ENGI 2304	Technical Communications	3
			CHEE 3321	Analytical Methods for Chem Engr	3
<b>Semester Hours</b>		<b>16</b>	<b>Semester Hours</b>		<b>17</b>
					<b>33</b>

## YEAR 3

SEMESTER 1		SEMESTER 2		Total	
CHEE 3333	Thermodynamics II	3	CHEE 3367	Process Modeling and Control	3
CHEE 3334	Statistical/Numerical Techniques	3	CHEE 3369	Chemical Engineering Transport Processes	3
CHEE 3363	Fluid Mechanics	3	CHEE 3462	Unit Operations	4
PHYS 1322	University Physics II	3	CHEE 3466	Biological and Physical Chemistry	4
ECON 2304	Microeconomic Principles	3			
CHEM Elect	Chemistry Elective	3			
<b>Semester Hours</b>		<b>18</b>	<b>Semester Hours</b>		<b>14</b>
					<b>32</b>

## YEAR 4

SEMESTER 1		SEMESTER 2		Total	
CHEE 4321	Chemical Engineering Design I	3	Science Elect	Advanced Science Elective	3
CHEE 4361	Chemical Engineering Practices	3	CHEE 4322	Chemical Engr Design II	3
CHEE 4367	Chemical Reaction Engr	3	CORE	Language, Philosophy & Culture	3
HIST 1378/79	The United States Since 1877	3	TECH ELEC	Technical Elective	3
CHEE 4366	Biomolecular Engr Fundamentals	3	TECH ELEC	Technical Elective	3
CORE	Creative Arts	3			
<b>Semester Hours</b>		<b>18</b>	<b>Semester Hours</b>		<b>15</b>
					<b>33</b>

**TOTAL SEMESTER HOURS 130**

\*Students should meet with their academic advisor to formulate their own plan. Course offerings are subject to change.



# FAST FACTS

552

TOTAL UNDERGRAD  
STUDENTS IN ChBE  
DEPARTMENT

\$68,445

AVG. STARTING SALARY  
WITH B.S. IN CHEMICAL  
ENGINEERING

19

TOTAL FACULTY  
IN ChBE  
DEPARTMENT

138

TOTAL FACULTY  
IN CULLEN  
COLLEGE

22:1

STUDENT-TO-FACULTY  
RATIO ACROSS THE  
UNIVERSITY