

# CHEMICAL ENGINEERING (STANDARD), BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

Minimum Total Credit Hours: 123

Overall GPA - Combined and OU: 2.00

Major GPA - Combined and OU: 2.00

Curriculum GPA - Combined and OU: 2.00

Program Code: B160

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum, including all prerequisite courses.

Two college-level courses in a single foreign language are required; this may be satisfied by successful completion of 2 years in a single foreign language in high school. Students who must take foreign language at the University will have an additional 6-10 hours of coursework.

Course	Title	Credit Hours
<b>Freshman</b>		
<b>First Semester</b>		
ENGL 1113	Principles of English Composition (Core I)	3
CHEM 1315	General Chemistry (Core II) <sup>1</sup>	5
MATH 1914	Differential and Integral Calculus I (Core I) <sup>2</sup>	4
HIST 1483 or HIST 1493	United States, 1492 to 1865 (Core IV) or United States, 1865 to the Present	3
ENGR 1411	Freshman Engineering Experience <sup>3</sup>	1
Credit Hours		16
<b>Second Semester</b>		
ENGL 1213 or EXPO 1213	Principles of English Composition (Core I) or Expository Writing	3
CHEM 1415	General Chemistry (Continued) <sup>1</sup>	5
MATH 2924	Differential and Integral Calculus II <sup>2</sup>	4
PHYS 2514	General Physics for Engineering and Science Majors (Core II)	4
Credit Hours		16
<b>Sophomore</b>		
<b>First Semester</b>		
MATH 2934	Differential and Integral Calculus III <sup>2</sup>	4
PHYS 2524	General Physics for Engineering and Science Majors	4
CH E 2002	Introduction to Chemical Engineering Computing	2
CH E 2033	Chemical Engineering Fundamentals <sup>4</sup>	3
CHEM 3053	Organic Chemistry I: Biological Emphasis	3
Credit Hours		16
<b>Second Semester</b>		
MATH 3113	Introduction to Ordinary Differential Equations	3

ENGR 2002	Professional Development	2
CH E 3113	Momentum, Heat and Mass Transfer I	3
CHEM 3153	Organic Chemistry II: Biological Emphasis	3
CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
Approved Elective, Artistic Forms (Core IV) <sup>5</sup>		3
Credit Hours		16

## Junior

### First Semester

CH E 3123	Momentum, Heat and Mass Transfer II	3
CH E 3473	Chemical Engineering Thermodynamics	3
CH E 3723	Numerical Methods for Engineering Computation	3
CHEM 3423	Physical Chemistry I	3
CHEM 3421	Physical Chemistry Laboratory	1
Approved Elective, Social Science (Core III) <sup>5</sup>		3
Credit Hours		16

### Second Semester

CH E 3313	Structure and Properties of Materials	3
CH E 3333	Separation Processes	3
CH E 3432	Unit Operations Laboratory	2
CH E 4473	Kinetics	3
Approved Elective, Western Civ. & Culture (Core IV) <sup>5</sup>		3
Credit Hours		14

## Senior

### First Semester

P SC 1113	American Federal Government (Core III)	3
CH E 4153	Process Dynamics and Control	3
CH E 4253	Process Design & Safety	3
CH E 4262	Chemical Engineering Design Laboratory	2
ENGR 2431	Electrical Circuits <sup>6</sup>	1
ENGR 3431	Electromechanical Systems <sup>6</sup>	1
Technical Elective I <sup>7</sup>		3
Credit Hours		16

### Second Semester

ENGR 2411	Applied Engineering Statics <sup>6</sup>	1
CH E 4273	Advanced Process Design	3
Technical Elective II <sup>7</sup>		3
Advanced Chemistry Elective (p. 2) <sup>7</sup>		3
Approved Elective, Non-Western Culture (Core IV) <sup>5</sup>		3
Credit Hours		13
Total Credit Hours		123

<sup>1</sup> CHEM 1315 and CHEM 1415 can be substituted with CHEM 1335 (Fall only) and CHEM 1435 (Spring only), respectively.

<sup>2</sup> MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

<sup>3</sup> Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

<sup>4</sup> Chemical engineering courses are sequential and usually offered only in the semester shown above. Note prerequisites.

<sup>5</sup> To be chosen from the University-Wide General Education Approved Course List. Three of these 12 hours must be upper-division (3000-4000). See list in the Class Schedule.

<sup>6</sup> It is recommended that ENGR 2431 and ENGR 3431 be taken in the same semester. The courses are offered in sequential five-week blocks during the semester.

<sup>7</sup> One of the Technical Elective I, Technical Elective II, or the Advanced Chemistry elective must be CH E. Prior faculty approval is needed.

Courses designated as Core I, II, III, IV or Capstone are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list.

## Advanced Chemistry Elective

Advanced chemistry elective must be pre-approved as having significant chemistry content. This elective may be chosen from but is not limited to the following:

Code	Title	Credit Hours
CHEM 3523	Physical Chemistry II	3
CHEM 3653	Introduction to Biochemistry	3
CHEM 4333	Advanced Inorganic Chemistry-Periodic System	3
CH E 5163	Heterogeneous Catalysis	3
CH E 5243	Biochemical Engineering	3
CH E 5373	Tissue Engineering	3
CH E 5453	Polymer Science	3
CH E 5673	Colloid and Surface Science	3