



CHEMICAL FOCUS AREA: Sustainability

Department of Chemical and Biochemical Engineering

General Education (19 sh)		sh
ALL	RHET:1030 Rhetoric	4
F/S	Diversity & Inclusion	3
ALL	Be Creative	3
ALL	Approved Gen Ed Course	3
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Math & Basic Science Core (24 sh)		sh
F/S	MATH:1550 Math I: Single Variable Calculus (P: ALEKS score ≥ 75 or MPT Level 3 score ≥ 9)	4
ALL	MATH:1560 Math II: Multivariable Calculus (P: MATH:1550)	4
ALL	MATH:2550 Math III: Matrix Algebra (P: MATH:1550)	2
ALL	MATH:2560 Math IV: Differential Equations (P: MATH:1560 & MATH:2550)	3
ALL	CBE:3020 Appl Stat Chem & Natural Resource Engr	3 OR
ALL	STAT:2020 Probability & Stats for Engr & Phys Sci (P: MATH:1560)	3 OR
ALL	STAT:3510 Biostatistics	3
ALL	CHEM:1110 Principles of Chemistry I (P: ALEKS score ≥ 55 or MPT Level 3 score ≥ 9)	4
ALL	PHYS:1611 Introductory Physics I / Lab (C: MATH:1550)	4

Engineering Core (7 sh)		sh
F	ENGR:1000 Engineering Success for First-Year Students (First semester standing)	1
F	ENGR:1100 Intro to Engineering Problem Solving	3
F/S	ENGR:1300 Intro to Engineering Computing (C: MATH:1550)	3

ChemE Requirements (53 sh)		sh
ALL	CHEM:1120 Principles of Chemistry II (P: CHEM:1110 with a minimum grade of C-)	4
ALL	CHEM:2210 Organic Chemistry I (P: CHEM:1120 with a minimum grade of C-)	3 OR
F	CHEM:2230 Organic Chemistry I for Majors (P: CHEM:1120 with a minimum grade of C-)	3
ALL	CHEM:2220 Organic Chemistry II (P: CHEM:2210 or CHEM:2230 with a minimum grade of C-)	3
S	CHEM:2240 Organic Chemistry II for Majors (P: CHEM:2210 or CHEM:2230 with a minimum grade of C-)	3 OR
ALL	CHEM:2410 Organic Chemistry Laboratory (P: CHEM:1120 & (CHEM:2210 or CHEM:2230), both with a minimum grade of C; C: CHEM:2220 or CHEM:2240)	3
		OR
S	CHEM:2420 Organic Chemistry Lab for Majors (P: CHEM:1120 & (CHEM:2210 or CHEM:2230), both with a minimum grade of C; C: CHEM:2220 or CHEM:2240)	3

ALL	ENGR:2130 Thermodynamics (P: CHEM:1110 & PHYS:1611; C: MATH:1560)	3
ALL*	ENGR:2720 Materials Science (P: CHEM:1110; C: MATH:1550)	3
F	CBE:2110 Computational Tools for Chemical Engineers (P: MATH:1550; C: MATH:1560)	2
F/S	CBE:2105 Process Calculations (P: MATH:1550)	3
S	CBE:3105 ChE Thermodynamics (P: ENGR:2130; C: CBE:2105)	3
S	CBE:3109 Fluid Flow (C: CBE:2105)	2
F	CBE:3113 Heat & Mass Transfer (P: MATH:2560 & CBE:2105; R: CBE:3109)	3
F	CBE:3117 Separations (P: CBE:2105 & CBE:3105; C: CBE:3113)	3
F/S	CBE:3120 Chemical Reaction Engineering (P: MATH:2560; C: CBE:3105; R: CBE:3113)	3
F	CBE:3125 Chemical Process Safety (P: CBE:3105 & CBE:3109; C: CBE:3113)	3
S	CBE:3150 Thermodynamics / Transport Laboratory (P: CBE:3105 & CBE:3113)	3
F	CBE:3155 Chemical Reaction Engineering / Separation Lab (P: CBE:3117; C: CBE:3120; R: Statistics Elective)	3
S	CBE:3205 Introduction Biochemical Engineering (P: CBE:2105; C: CME:3109; R: CBE:3120)	3
F	CBE:4105 Process Dynamics & Control	3

ChemE Capstone Design Courses (5 sh)		sh
F	CBE:4109 Chemical Engineering Process Design I (P: CBE:3109, CBE:3113, & CBE:3117; C: CBE:3120 & CBE:3125)	2
S	CBE:4110 Chemical Engineering Process Design II (P: CBE:4109; R: CBE:4105 & CBE:3205)	3

ChemE Departmental Seminars (5 sh)		sh
S	CBE:1000 CBE Departmental Seminar	1
F/S	CBE:3000 CBE Professional Seminar (1 sh x4); (P: CBE:2105)	4
S	CBE:4195 Senior Enriching Activities Seminar (C: CBE:4110)	0

Be Creative General Education Courses		3 sh
Choose one		
	CNW:2740 The Art and Craft of Writing About the Environment (see MyUI for offerings)	3
	CW:3210 Creative Writing and the Natural World (see MyUI for offerings)	3

General Education courses		9 sh	
ALL	GEOG:1070 Contemporary Environmental Issues	3	
F/S	GEOG:2013 Introduction to Sustainability	3	
F/S	ENGL:1510 Introduction to Environmental Literature	3	
OR	F/S	JMC:1800 Environmental Communication in the Digital Age	3

Advanced Chemistry/Science Electives		6sh
Advanced Chemistry or Biochemistry Course		
	CBE:5425 Atmospheric Chemistry and Physics (C: CBE:3120) (spring semester, even years)	3

EFA Electives		12sh	
S	CBE:4410 Sustainable Systems	3	
F/S	EES:1080 Introduction to Environmental Science	3	
OR	F	EES:1085 Fundamentals of Environmental Science	3
	Dynamics of Human Systems course (see Note 2)		3
	Additional Sustainability Certificate course or 3000-level science or engineering course		3

Note 1: Completion of all the courses listed above will result in the completion of a B.S. Degree in Chemical Engineering and a Certificate in Sustainability. Must apply for the Sustainability Certificate on MyUI.

Note 2: The Certificate in Sustainability requires 12 s.h. Introductory Core courses, 3 s.h. from each of the 3 Breadth Electives categories (Dynamics of Natural Systems, Dynamics of Human Systems, & Communication, Ethics, and Interpretation) and 3 s.h. from the Project/Integrative Systems category, for a total of 24 s.h. (see the Sustainability section in the UI General Catalog[1]).

[1] <https://catalog.registrar.uiowa.edu/university-college/sustainability/certificate/>