

2014 - 2015 Major Map
Chemical Engineering, BSE

Ira A. Fulton Schools of Engineering
Tempe campus
ESCEBSE

Term 1	0 - 16 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		🔻	CHM 113: General Chemistry I (SQ)	4	C	<ul style="list-style-type: none"> An SAT, ACT, Accuplacer, or TOEFL score determines placement into first-year composition courses ASU Math Placement Exam score determines placement in Mathematics course ASU 101 or College specific equivalent First Year Seminar required of all freshman students. If ENG 105 taken, a 3 hr applicable elective must also be taken prior to graduation. See Advisor.
		🔻	ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
		🔻	FSE 100: Introduction to Engineering	2	C	
		🔻	MAT 265: Calculus for Engineers I (MA)	3	C	
			ASU 101-CHE: The ASU Experience	1		
			Humanities, Fine Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Humanities, Fine Arts and Design (HU) AND Global Awareness (G) OR Humanities, Fine Arts and Design (HU) AND Historical Awareness (H)	3		
		🔻	Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:			16			

Mesa Community College	
Course	Hours
CHM 151 and CHM 151LL	4
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3
ECE 102 and ECE 103	2 2
MAT 221 or MAT 220	4 5
General Studies (HU-C OR HU-G OR HU-H)	3

*** ECE 102 and ECE 103 satisfy both
ASU 101 and FSE 100

Term 2	17 - 30 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		🔻	CHM 116: General Chemistry II (SQ)	4	C	<ul style="list-style-type: none"> Complete ENG 101 OR ENG 105 OR ENG 107 course(s).
		🔻	ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
		🔻	MAT 266: Calculus for Engineers II (MA)	3	C	
		🔻	PHY 121: University Physics I: Mechanics (SQ)	3	C	
		🔻	PHY 122: University Physics Laboratory I (SQ)	1		
		🔻	Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:			14			

Mesa Community College	
Course	Hours
CHM 152 and CHM 152LL	4
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3
MAT 231 or MAT 230	4 5
PHY 121	4

Term 3	31 - 44 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		🔻	CHE 211: Introduction to Chemical Processing	3	C	<ul style="list-style-type: none"> Complete FSE 100 AND CHM 113 AND ENG 101 OR ENG 107 OR ENG 105 AND MAT 265 AND CHM 116 AND ENG 102 OR ENG 108 AND MAT 266 AND PHY 121 AND PHY 122 AND CHE 211 course(s).
			MAT 242: Elementary Linear Algebra	2		
			MAT 275: Modern Differential Equations (MA)	3	C	
			Bioscience Elective	3		
			Humanities, Fine Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Humanities, Fine Arts and Design (HU) AND Global Awareness (G) OR Humanities, Fine Arts and Design (HU) AND Historical Awareness (H)	3		
		🔻	Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:			14			

Mesa Community College	
Course	Hours
MAT 225	3
MAT 277	3
BIO 181 or BIO 182	4
General Studies (HU-C OR HU-G OR HU-H)	3

Term 4	45 - 59 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		🔻	CHE 231: Introduction to Transport Phenomena I: Fluids	3	C	<ul style="list-style-type: none"> For a list of 2** Engineering Elective & Upper Division Advanced Chemistry/Biochemistry
		🔻	MAT 267: Calculus for Engineers III (MA)	3	C	

Mesa Community College	
Course	Hours
MAT 241 or MAT 240	4 5

PHY 131: University Physics II: Electricity and Magnetism (SQ)	3
2** Level Engineering Elective	3
Social and Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) OR Social and Behavioral Sciences (SB) AND Global Awareness (G) OR Social and Behavioral Sciences (SB) AND Historical Awareness (H)	3
Term hours subtotal:	15

Technical Elective course options, please visit:
http://engineering.asu.edu/semte/chemical_B.html.

Mesa Community College	
Course	Hours
PHY 131	4
ECE 214 or EEE 202	4 5
General Studies (SB-C OR SB-G OR SB-H)	3

Term 5 60 - 75 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
CEE 384: Numerical Methods for Engineers (CS)	3	C	<ul style="list-style-type: none"> For a list of 2** Engineering Elective & Upper Division Advanced Chemistry/Biochemistry Technical Elective course options, please visit: http://engineering.asu.edu/semte/chemical_B.html.
★ CHE 334: Introduction to Transport Phenomena II: Heat and Mass Transfer	3	C	
★ CHE 342: Introduction to Applied Chemical Thermodynamics	3	C	
CHM 233: General Organic Chemistry I	3		
CHM 237: General Organic Chemistry Laboratory I	1		
Upper Division Advanced Chemistry/Biochemistry Technical Elective	3		
Term hours subtotal:	16		

Mesa Community College	
Course	Hours
CHM 235 and CHM 235LL	4

Term 6 76 - 90 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ CHE 433: Modern Separations	3	C	
★ CHE 442: Introduction to Chemical Reactor Design	3	C	
CHE 352: Transport Laboratories (L)	3	C	
CHM 234: General Organic Chemistry II	3		
IEE 220: Business/Industrial Engr	3		
Term hours subtotal:	15		

Mesa Community College	
Course	Hours
CHM 236	3

Term 7 91 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ CHE 432: Principles of Chemical Engineering Design	3	C	<ul style="list-style-type: none"> For a list of Upper Division Advanced Chemistry/Biochemistry Technical Elective course options, please visit: http://engineering.asu.edu/semte/chemical_B.html.
CHE 451: Chemical Engineering Laboratory II	3		
CHE 461: Process Dynamic Control (CS)	3		
Upper Division Advanced Chemistry/Biochemistry Technical Elective	3		
Social and Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) OR Social and Behavioral Sciences (SB) AND Global Awareness (G) OR Social and Behavioral Sciences (SB) AND Historical Awareness (H)	3		
Term hours subtotal:	15		

Mesa Community College	
Course	Hours
General Studies (SB-C OR SB-G OR SB-H)	3

Term 8 106 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ CHE 462: Process Design (L)	3		<ul style="list-style-type: none"> For a list of CHE Upper Division Elective & Upper Division Natural Science or MSE Technical Elective course options, please visit: http://engineering.asu.edu/semte/chemical_B.html.
Upper Division CHE Upper Division Technical Elective	6		
Upper Division Natural Science or MSE Technical Elective	3		
Upper Division Humanities, Fine Arts and Design (HU) OR Upper Division Social and Behavioral Sciences (SB)	3		
Term hours subtotal:	15		

- For a list of 2** Engineering Electives, Upper Division Advanced Chemistry/Biochemistry Technical Electives, CHE Upper Division Electives, and Upper Division Natural Science or MSE Technical Elective course options please visit:
http://engineering.asu.edu/semte/chemical_B.html

Bioscience Elective

BCH 361: Advanced Principles of Biochemistry

BCH 461: General Biochemistry

BCH 463: Biophysical Chemistry

BIO 181: General Biology I (SQ)

BIO 182: General Biology II (SG)

BME 111: Engineering Perspectives on Biological Systems

CHE 475: Biochemical Engineering

MBB 245: Principles of Molecular and Cellular Biology I (SQ)

MBB 247: Principles of Molecular and Cellular Biology II

MIC 205: Microbiology (SG)

MIC 220: Biology of Microorganisms

Total Hours: 120
Upper Division Hours: 45 minimum
Major GPA: 2.00 minimum
Cumulative GPA: 2.00 minimum
Total hrs at ASU: 30 minimum
Hrs Resident Credit for Academic Recognition: 56 minimum
Total Community College Hrs: 64 maximum

General University Requirements Legend

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Fine Arts and Design (HU)
- Social and Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed on the major map are current for the 2014 - 2015 academic year.