

2014 - 2015 Major Map
Biomedical Engineering, BSE

Ira A. Fulton Schools of Engineering
Tempe campus
ESBMEBSE

Term 1	0 - 15 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		⚠	CHM 114: General Chemistry for Engineers (SQ) or CHM 116: General Chemistry II (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 required of all 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	
		⚠	MAT 265: Calculus for Engineers I (MA)	3	C	
			ASU 101-BME: The ASU Experience	1	C	
		⚠	BME 100: Introduction to Biomedical Engineering	3	C	
			BME 182: Biomedical Engineering Product Design and Development I	1	C	
		⚠	Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:			15			

Mesa Community College	
Course	Hours
CHM 152 and CHM 152LL	4
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3
MAT 221 or MAT 220	4 5

Term 2	16 - 31 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		⚠	BME 111: Engineering Perspectives on Biological Systems	3	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 required of all 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	
		⚠	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	C	
			CSE 100: Principles of Programming with C++ (CS)	3	C	
		⚠	Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:			16			

Mesa Community College	
Course	Hours
ECE 111	3
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3
MAT 231 or MAT 230	4 5
PHY 121	4
CSC 100	3

Term 3	32 - 47 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		⚠	MAT 267: Calculus for Engineers III (MA)	3	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 required of all students. If ENG 105 taken, a 3 hr applicable elective must also be taken prior to graduation. See Advisor.
		⚠	PHY 131: University Physics II: Electricity and Magnetism (SQ)	3	C	
		⚠	PHY 132: University Physics Laboratory II (SQ)	1	C	
			BME 213: Biomedical and Bioengineering Ethics	1	C	
			BME 214: FDA Regulatory Processes and Technical Communications	1	C	
			BME 235: Physiology for Engineers	4	C	
			ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB) or ECN 213: null	3		
		⚠	Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:			16			

Mesa Community College	
Course	Hours
MAT 241 or MAT 240	4 5
PHY 131	4
ECN 211 OR ECN 212	3

Term 4	48 - 62 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes	
		⚠	BME 200: Conservation Principles in Bioengineering	3	C	
			BME 282: Biomedical Engineering Product Design and Development II	1	C	
			CHM 231: Elementary Organic Chemistry (SQ) OR CHM 233: General Organic Chemistry I	3	C	

Mesa Community College	
Course	Hours
CHM 230 OR CHM 235	3

CHM 235: Elementary Organic Chemistry Laboratory (SO) OR CHM 237: General Organic Chemistry Laboratory I	1	C
EEE 202: Circuits I	4	C
MAT 275: Modern Differential Equations (MA)	3	C
◆ Complete BME 111 AND BME 100 AND MAT 265 AND MAT 266 AND MAT 267 AND PHY 121 AND PHY 122 AND PHY 131 AND PHY 132 AND BME 200 AND CHM 114 OR CHM 116 course(s).		
Term hours subtotal:	15	

Term 5 63 - 77 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BME 300: Bioengineering Product Design	3	C	
BME 318: Biomaterials	4	C	
BME 322: Statistics for Biomedical Engineering	1	C	
BME 350: Signals and Systems for Bioengineers	3	C	
MAE 212: Engineering Mechanics	4	C	
Term hours subtotal:	15		

Term 6 78 - 92 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BME 370: Microcomputer Applications in Bioengineering	3	C	<ul style="list-style-type: none"> A list of approved related electives can be found online at: http://sbhse.engineering.asu.edu/academics/currentstudents/undergraduate/curriculum/
BME 301: Numerical Methods in Biomedical Engineering	2	C	
BME 331: Transport Phenomena for Biomedical Engineering	3	C	
BME 382: Biomedical Engineering Product Design and Development III	1	C	
CHE 342: Introduction to Applied Chemical Thermodynamics	3	C	
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		
Term hours subtotal:	15		

Term 7 93 - 106 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BME 417: Biomedical Engineering Capstone Design I (L)	4	C	<ul style="list-style-type: none"> A list of approved related electives can be found online at: http://sbhse.engineering.asu.edu/academics/currentstudents/undergraduate/curriculum/
BME 413: Biomedical Instrumentation (L) AND BME 423: Biomedical Instrumentation Laboratory (L)	4	C	
Upper Division Related 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:	14		

Term 8 107 - 120 Credit Hours Necessary course signified by by ★	Hours	Minimum Grade	Notes
★ BME 490: Biomedical Engineering Capstone Design II	4	C	<ul style="list-style-type: none"> A list of approved related electives can be found at: http://sbhse.engineering.asu.edu/academics/currentstudents/undergraduate/curriculum/
Upper Division Related Elective	4		
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		
Upper Division Humanities, Fine Arts and Design (HU) OR Upper Division Social and Behavioral Sciences (SB)	3		
★ Complete BME 300 AND BME 370 AND BME 417 AND BME 490 course(s).			
Term hours subtotal:	14		

Mesa Community College	
Course	Hours
CHM 230LL OR CHM 235LL	1
EEE 202	5
MAT 277	3

Mesa Community College	
Course	Hours
ECE 214	4

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

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

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

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.