

# Biomedical Engineering

The curriculum is 123 credits comprised of a Basic Program plus Electives which students select to meet both University Core requirements and requirements of the Biological Engineering degree.

**Student Performance and Retention Requirements:** Students are required by Board of Regents policy to achieve a C- or better grade in each class used to satisfy the Bachelor of Science degree requirements. Moreover, students must achieve a C- or better grade prior to taking follow-on courses.

Freshman Year	Credits	
	Fall	Spring
EBME 100 - Introduction to Biomedical Engineering	2	
CHMY 141 - College Chemistry I & CHMY 142 - College Chemistry I Lab or CHMY 151 and CHMY 152	4	
M 171Q - Calculus I or M 181Q - Honors Calculus I	4	
BIOH 185 - Integrated Physiology I	4	
US or W Core course	3	
CHMY 143 - College Chemistry II & CHMY 144 - College Chemistry II Lab or CHMY 153 and CHMY 154		4
M 172 - Calculus II or M 182 - Honors Calculus II		4
PHSX 220 - Physics I with Calculus or PHSX 240 - Honors Gen & Mod Phys I		4
US or W Core course		3
Year Total:	17	15

Sophomore Year	Credits	
	Fall	Spring
M 273 - Multivariable Calculus or M 283 - Honors Multivariable Calculus	4	
BIOB 260 - Cellular and Molecular Biology or BIOB 160 - Principles of Living Systems	4	
PHSX 222 - Physics II with Calculus or PHSX 242 - Honors Gen & Mod Phys II	4	
ECHM 201 - Material and Energy Balances for Chemical & Biological Processes	4	
M 274 - Introduction to Differential Equation or M 284 - Honors Introduction to Differential Equations		4
EBIO 216 - Elem Princ of Biological Engineering		3
CHMY 211 - Elements of Organic Chemistry & CHMY 212 - Elements of Organic Chemistry Lab or CHMY 331 - Honors Organic Chemistry I		5
EELE 250 - Circuits, Devices and Motors		4
Year Total:	16	16

Junior Year	Credits	
	Fall	Spring
EGEN 201 - Engineering Mechanics-Statics	3	
EBIO 324 - Bioengineering Transport	3	
EIND 354 - Engineering Probability and Statistics I	3	
EBME 410 - Fundamentals of Bioelectronics for Bioinstrumentation	4	

EGEN 102 - Intro to Engineer Comp Apps	3	
EBIO 461 - Principles of Biomedical Engineering		3
EBME 301 - Engineering Analysis of Physiological Systems		3
EGEN 205 - Mechanics of Materials		3
IH, IA, IS, or D Core course		3
Year Total:	16	12

Senior Year	Credits	
	Fall	Spring
EMAT 464 - Biomedical Materials Engineering	3	
EBME 440 - Biomedical Engineering Laboratory	3	
EBIO 407 - Biological Engineering Thermodynamics	3	
Professional Electives	3	
IA, IH, IS, or D Core course	3	
Professional Elective		3
IA, IH, IS, or D Core course		3
IA, IH, IS, or D Core course		3
EBME 480 - Biomedical Engineering Design		4
EMEC 440 - Biomechanics of Human Movement		3
Year Total:	15	16
<b>Total Program Credits:</b>		<b>123</b>

## Pre-Approved Biomedical Engineering Professional Electives (Must take 2 of the following)

BCH 441	Biochemistry of Macromolecules	3
BCH 444R	Biochemistry & Molecular Biology Methods	3
BIOB 410	Immunology	3
BIOB 420	Evolution	3
BIOB 425	Adv Cell & Molecular Biology	3
BIOB 476R	Gene Construction	4
BIOH 320	Biomedical Genetics	3
BIOH 323	Human Developmental Biology	4
BIOH 422	Genes and Cancer	3
BIOM 250	Microbiology for Health Sciences: Infectious Diseases	3
BIOM 410	Microbial Genetics	3
BIOM 415	Microbial Diversity, Ecology, and Evolution	3
BIOM 425	Toxicology: Science of Poisons	3
BIOM 431	Medical Bacteriology	3
BIOM 435	Virology	3
EBIO 438	Bioprocess Engineering	3
ECHM 321	Chemical Engineering Fluid Mechanics Operations	3
EELE 308	Signals and Systems Analysis	4
EELE 418	The Art of Biochips – An Introduction to BioMEMS	3
EELE 477	Digital Signal Processing	4
EMEC 444	Mech Behavior of Materials	3
EMEC 465	Bio-inspired Engineering	3
EMEC 424	Cellular Mechanotransduction	3
M 348	Techniques of Applied Math I	3
M 349	Techniques of Applied Mathematics II	3
M 441	Numerical Linear Algebra & Optimization	3
M 442	Numerical Solution of Differential Equations	3

M 430	Mathematical Biology	3
NEUR 409	Human Neuroanatomy	4