

# BIOMEDICAL ENGINEERING CURRICULUM

BACHELOR OF SCIENCE IN BME - **BIOMECHANICS TRACK** - FALL 2017 AND LATER

NAME: \_\_\_\_\_

ID: \_\_\_\_\_

1st Year (Fall)	Prerequisite	Cr	Semester	1st Year (Spring)	Prerequisite	Cr	Semester
Chem 125 Chem I	None	3		Chem 126 Chem II	Chem 125	3	
BME 111 - Intro to Phys	None	3		Chem 124 Chem Lab	Chem 126	1	
HUM 101 Writ, Speak, Think I:	None	3		FED 101	None	2	
Math 111 Calc I	None	4		HUM 102 Wri, Speak, Think II: HUM 102		3	
Phys 111 Physics I	Phys 111A, Math 111/*	3		Math 112 Calc II	Math 111	4	
Phys 111A Phys I Lab	Phys 111A*	1		Phys 121 Physics II	Phys 111, Phys 121A*, Math 112*	3	
BME 101- Freshman Seminar <b>F</b>		0		Phys 121A Phys. II Lab	Phys 111A	1	
		17				17	
2nd Year (Fall)				2nd Year (Spring)			
Math 211(13) Calc IIIA	Math 112	3		Math 222 Diff Equations	Math 112	4	
Engr Prob & Stat: Math 279 (333)	Math 112	2		CHEM 243 Org Chem	CHEM 126	3	
BME 302 - Mech Fund <b>U</b>	C in MATH 112, PHYS 121	3		BME 301 - Electrical Fund <b>U</b>	C in MATH 112, PHYS 121	3	
BME 303 - Biological Fund <b>F</b>	C in BME 111, CHEM 126	3		BME 304 - Material Fund	C in BME 111, CHEM 126	3	
CS101 or BIONF 135 or CS 115	None	3		HUM3xx***	VARIOUS	3	
HUM/His 2XX***	Hum 102	3					
		17				16	
3rd Year (Fall)				3rd Year (Spring)			
MATH 337 Linear Algebra	MATH 112	3		BME351 - Intro to BioFluid Mech <b>S</b>	BME 302, MECH 236 and BME 321	3	
MECH 236 Dynamics	MECH 234 or 235 OR BME 302	2		BME382 Eng Mod Phys Sys	C in BME 111, BME 301, BME 302 and Math 222	3	
BME 321 Adv Mech for BME <b>F</b>	C in BME302	3		BME384 Biomech Lab <b>S</b>	BME 302, MECH 236, BME 321, CS 101, MATH 279	3	
BME 310 Biomed Computing	C in BME 111, BME 301, CS 101	3		Engineering Track Elective	VARIOUS	3	
HUM3xx (suggested ENG 340 or 352)	VARIOUS	3		MANAGEMENT (IE492)	VARIOUS	3	
Nonengineering Track Elective	VARIOUS	3					
		17				15	
4th Year (Fall)				4th Year (Spring)			
Engineering Track Elective	VARIOUS	3		BME452 Mech. B&P of Biomat. <b>S</b>	BME302,304,321; MATH222,337&279	3	
Nonengineering Track Elective	VARIOUS	3		BME478 Intro CAD for Biomech <b>S</b>	BME302 & BME321	3	
BME383 Meas Lab Phys Sys	BME302, BME 310, & MATH 279	3		BME 496 Capstone Design II	BME 495	3	
BME451 Biomechanics I <b>F</b>	BME 302, MECH 236 and BME321	3		Capstone HSS 4XX	Senior Standing	3	
BME 495 Capstone Design I	BME 372 OR MTSE 301 OR (MECH 236 & BME321)	3					
		15				12	
All courses are offered Fall and Spring semester unless otherwise labeled: ( <b>F</b> -Fall only; <b>S</b> -Spring only; <b>U</b> -also offered Summer)							<b>126</b>
Additional Coursework	Prerequisite	Cr	Semester	Additional Coursework	Prerequisite	Cr	Semester

**Engineering Elective:** Technical elective courses with sufficient engineering content: Generally any 300-level or higher courses with prefix BME, ME, CHE, EE, OPSE (excluding MECH320)

**Non-Engineering Elective:** Generally any 300-level or higher science course with prefix CS, MATH, PHYS, CHEM, IE, MTSE \*\*exceptions apply, check with your academic advisor

\*\*\*One introductory (2xx) course followed by two advanced (3xx) courses in Humanities and History. Courses to be included have the prefix Com, Eng, Hist, Lit, Phil, STS, and Thtr.

<i>Biomechanics Track - List of Approved Engineering &amp; Non-Engineering Electives (3xx/4xx)</i>	
OPSE 301	Optical Science & Engineering
MATH 3xx/4xx	Upper Level Mathematics Course - Excluding MATH 346
PHYS 350	Biophysics I
PHYS 451	Biophysics II
OPSE 310	Virtual Instrumentation
OPSE 402	High Power Laser & Photonics Applications
OPSE 410	Biophotonics
MTSE 301	Material Science & Engineering
BME 385	Cell & Biomaterials Engineering Laboratory
BME 422	Biomaterials Characterization
BME 427	Biotransport
BME 479	Biomems
IE 355	Human Factors
IE 449	Industrial Robotics
ECE 431	Systems & Virtual Instrumentation
ECE 435	Medical Imaging Instrumentation & Data Acquisition Systems
ECE 436	Bio-Control Systems
ECE 438	Bio-Electronic Systems Laboratory
BME 491	BME Research & Independent Study I
BME 311	Co-op Work Experience
BME 492	BME Research & Independent Study II
BME 6xx	Master's Level Engineering
ME 435	Thermodynamics
CHEM 244	Organic Chemistry